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EXAMINER	
YOUNG, NATASHA E	

ART UNIT	PAPER NUMBER
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,025	BRIDGWATER ET AL.	
	Examiner	Art Unit	
	NATASHA YOUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-15* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diebold et al (US 5,413,227) in view of Schmidt (DE 3407236 A1).

Regarding claim 1, Diebold et al discloses an ablative thermolysis reactor (see column 1, lines 23-28 and column 4, line 44 through column 5, line 22) comprising: (i) a reaction vessel (13), (ii) an inlet into the reaction vessel for receiving feedstock, (iii) an outlet from the reaction vessel for discharging thermolysis product, (iv) within the reaction vessel, an ablative surface defining the periphery of a cylinder, (v) heating means arranged to heat said ablative surface to an elevated temperature (see column 4, line 26 through column 5, line 22 and figure 1).

Diebold et al does not disclose (vi) at least one rotatable surface, the, or each, rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the ablative surface such that feedstock is mechanically pressed between a part of the rotatable surface and said ablative surface and moved along the ablative surface by the rotatable surface, whereby to thermolyse said feedstock.

Schmidt discloses a rotary drum reactor with at least one rotatable surface, the, or each, rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the reactor surface such that feedstock is mechanically pressed between a part of the rotatable surface and said reactor surface and moved along the reactor surface by the rotatable surface, whereby to thermolyse said feedstock (see paragraphs 26 through paragraph 31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Diebold et al with the teachings of

Schmidt such that at least one rotatable surface, the or each rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the ablative surface such that feedstock is mechanically pressed between a part of the rotatable surface and said ablative surface and moved along the ablative surface by the rotatable surface, whereby to thermolyse said feedstock in order to improve compressing and discharging the waste out of the reactor with the addition of the rotatable surface.

Regarding claim 2, Diebold et al discloses an ablative thermolysis reactor (see column 1, lines 23-28 and column 4, line 44 through column 5, line 22) comprising: (i) a reaction vessel (13), (ii) an inlet into the reaction vessel for receiving feedstock, (iii) an outlet from the reaction vessel for discharging thermolysis product, (iv) within the reaction vessel, an ablative surface defining the periphery of a cylinder, (v) heating means arranged to heat said ablative surface to an elevated temperature (see column 4, line 26 through column 5, line 22 and figure 1).

Diebold et al does not disclose (vi) at least one rotatable surface, the, or each ,rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the ablative surface such that feedstock is mechanically pressed between a part of the rotatable surface and said ablative surface and moved along the ablative surface by the rotatable surface, whereby to thermolyse said feedstock, and wherein the reaction vessel is bounded by an inner wall with the ablative surface being defined by an outwardly facing surface of said inner wall.

It would have been an obvious matter of design choice to have the reaction vessel bounded by an inner wall with the ablative surface being defined by an outwardly facing surface of said inner wall, since applicant has not disclosed that the reaction vessel bounded by an inner wall with the ablative surface being defined by an outwardly facing surface of said inner wall solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the reaction vessel bounded by an inner wall with the ablative surface being defined by an outwardly facing surface of said inner wall.

Schmidt discloses a rotary drum reactor with at least one rotatable surface, the, or each, rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the reactor surface such that feedstock is mechanically pressed between a part of the rotatable surface and said reactor surface and moved along the reactor surface by the rotatable surface, whereby to thermolyse said feedstock (see paragraphs 26 through paragraph 31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Diebold et al with the teachings of Schmidt such that at least one rotatable surface, the or each rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the ablative surface such that feedstock is mechanically pressed between a part of the rotatable surface and said ablative surface and moved along the ablative surface by the rotatable surface, whereby to thermolyse

said feedstock in order to improve compressing and discharging the waste out of the reactor with the addition of the rotatable surface.

Regarding claim 3, Diebold et al does not disclose a reactor wherein the, or each, rotatable surface is mounted outwardly of the ablative surface and arranged to press feedstock toward the axis of rotation.

Schmidt discloses a reactor wherein the, or each, rotatable surface is mounted outwardly of the ablative surface and arranged to press feedstock toward the axis of rotation (see figure 3 and paragraph 31).

Regarding claim 4, Diebold et al inherently disclose a reactor wherein the reaction vessel is bounded by an outer peripheral wall with the ablative surface being defined by an inwardly facing surface of said outer wall, since the reactor has an outer wall and the inner wall would be the ablative surface (see figure 1 and column 1, lines 23-28 and column 4, line 44 through column 5, line 22).

Regarding claim 5, Diebold et al does not disclose a reactor wherein the, or each, rotatable surface is mounted inwardly of the ablative surface and arranged to press feedstock away from the axis of rotation.

Schmidt discloses a reactor wherein the, or each, rotatable surface is mounted inwardly of the ablative surface and arranged to press feedstock away from the axis of rotation (see figure 3).

Regarding claim 6, Diebold et al disclose a reactor wherein said ablative surface has a circular or elliptical cross-section perpendicular to the axis of rotation of the or each rotatable surface (see figure 1).

Regarding claim 7, Diebold et al does not disclose a reactor wherein said at least one rotatable surface is in the form of a rotatable blade.

Schmidt discloses a reactor wherein said at least one rotatable surface is in the form of a rotatable blade (see figure 3).

Regarding claim 8, Diebold et al discloses a reactor wherein said heating means is adapted to heat said ablative surface to a temperature in the range of from about 400°C to about 700°C (see column 4, lines 26-39).

Regarding claim 9, Diebold et al does not disclose a reactor wherein said heating means is arranged to heat the ablative surface by electrical heating, by the combustion of a solid, liquid or gaseous fuel, by condensation of a vapour, or by circulation of a hot fluid.

However, Diebold et al discloses the method of supplying heat to the vortex reactor is incorporated by reference in its entirety (see column 4, lines 26-43).

Schmidt discloses the heating chambers are heated with the hot flue gases from the combustion chamber (see paragraph 26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Diebold et al with the teachings of Schmidt such that said heating means is arranged to heat the ablative surface by the combustion of a solid, liquid or gaseous fuel, by condensation of a vapour or by circulation of a hot fluid in order to reduce operating costs.

Regarding claim 10, Diebold et al does not disclose a reactor wherein means are provided to adjust the angle of the rotatable surface, or front surface of each blade when present, relative to the ablative surface.

Schmidt discloses a reactor wherein means are provided to adjust the angle of the rotatable surface, or front surface of each blade when present, relative to the ablative surface (see figure 3 and paragraph 30) which discloses a ball joint which adjusts the angle of rotation as the waste travels through the reactor.

Regarding claim 12, Diebold et al does not disclose a reactor wherein means are provided to adjust the spacing between each rotatable surface and the ablative surface.

Schmidt discloses a reactor wherein means are provided to adjust the spacing between each rotatable surface and the ablative surface (see figure 3 and paragraph 30) which discloses a ball joint which adjust the angle of rotation as the waste travels through the reactor.

Regarding claim 13, Diebold does not disclose a reactor wherein the, or each, rotatable surface is resiliently biased toward the ablative surface.

Schmidt et al discloses a reactor wherein the, or each, rotatable surface is resiliently biased toward the reactor surface (see figure 3).

Regarding claim 14, neither Diebold et al nor Schmidt discloses a reactor wherein a plurality of rotatable surfaces are provided, the rotatable surfaces preferably being equi-angularly displaced about the axis of rotation.

However, Schmidt discloses a plurality of rotatable surfaces (see figure 3).

It would have been an obvious matter of design choice to have a plurality of rotatable surfaces are provided, the rotatable surfaces preferably being equi-angularly displaced about the axis of rotation, since applicant has not disclosed that a plurality of rotatable surfaces are provided, the rotatable surfaces preferably being equi-angularly displaced about the axis of rotation solves any stated problem or is for any particular purpose and it appears that the invention would perform well with a plurality of rotatable surfaces are provided, the rotatable surfaces preferably being equi-angularly displaced about the axis of rotation.

Regarding claim 15, Diebold et al does not disclose a reactor wherein said reactor is provided with a continuous feed mechanism for supplying feedstock into said reaction vessel.

It would have been an obvious matter of design choice to have a continuous feed mechanism for supplying feedstock into said reaction vessel, since applicant has not disclosed that a continuous feed mechanism for supplying feedstock into said reaction vessel solves any stated problem or is for any particular purpose and it appears that the invention would perform well with a continuous feed mechanism for supplying feedstock into said reaction vessel.

Allowable Subject Matter

Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not disclose or suggest the teaching of angle adjustment means are provided to adjust independently each rotatable surface or blade when present.

Response to Arguments

Applicant's arguments, see Remarks (see pages 5-7), filed June 17, 2008, with respect to the rejection(s) of claim(s) 1-9 and 14-15 under 102(b) and the rejections of claim(s) 10-13 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Diebold et al (US 5,413,227) in view of Schmidt (DE 3407236 A1).

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

The prior art reference does not disclose or suggest the limitation of the feedstock being mechanically pressed between a part of the rotatable surface and said ablative surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is (571)270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797